

Remarks

In response to the Office Action of July 11, 2003, amendments to claims 1, 2, 8, 9, 10, 16, 17, 21, 22, 27, 28, 34, 39 and 40 are offered. This supercedes the response filed September 16, 2003. Claims 1 to 41 remain pending. Reexamination and reconsideration in light of these amendments and the following discussion is respectfully requested.

The Examiner had objected to claim 1 and suggested that -- of -- be inserted into claim 1, line 10, before "the first ferrule end," and before, "the second ferrule end." Claim 1 has been amended to reflect the Examiner's suggestion. Withdrawal of the objection is respectfully requested.

In the Final Rejection mailed on July 11, 2003, the Examiner cited Takahashi, U.S. Patent No. 6,341,191, along with other references, in rejecting claims 1 to 41 under 35 U.S.C. §103(a) as obvious. These rejections are traversed.

In a telephone interview between the Examiner and Applicants' representative Alan Stewart on September 15, 2003, the Takahashi '191 reference cited in a Final Rejection mailed on July 11, 2003, was discussed. In the interview, the rotational and longitudinal movement of the ferrules of the Takahashi '191 reference were pointed out and the difference between the teaching of this reference and the pending claims was discussed. The Examiner noted that this difference was not clear before and agreed to review the claims to determine the allowability of the claims in light of this difference. In addition, amendments to claim 40 were discussed to place this claim in condition for allowance. The result of the discussions during the interview is reflected in the remarks below regarding the rejections of the pending claims.

In each of the rejections, Takahashi '191 is cited for teaching that the ferrule ends of the attenuation hub are fixed with respect to each other, as recited in independent claims 1, 9, 16, 21, 28, 34 and 40. However, contrary to the Examiner's assertion, Takahashi '191 clearly shows that the ferrule ends of the attenuation hub are movable with respect to each other. Takahashi teaches a variable attenuation type optical power attenuator where the attenuation is provided by an air gap S between ferrule end surfaces 12 and 13. The degree of attenuation provided by the attenuator is varied by varying the size of the air gap. See FIGS. 2B, 3B, 4B and 5, and col. 5, lines 1 to 45. The size of the air gap is varied by rotation of rotatable ferrule 9 with respect to fixed ferrule 8. Ferrule end faces 12 and 13 are shaped so that rotation of ferrule 9 will also move the ferrules longitudinally with respect to each other.

Thus, Takahashi '191 clearly teaches that the ferrule not be fixed with respect to each other. In fact, Takahashi '191 teaches away from the limitation recited in claims 1, 9, 16, 21, 28, 34 and 40, that the ends of the ferrule within the adapter be fixed with respect to each other.

For at least these reasons, Applicants submit that claims 1, 9, 16, 21, 28, 34 and 40 are not rendered obvious by the cited prior art and are in condition for immediate allowance. Reexamination and reconsideration are respectfully requested.

Claims 2 to 8, 10 to 15, 17 to 20, 22 to 27, 29 to 33, 35 to 39 and 41 depend from and further limit independent claims 1, 9, 16, 21, 28, 34 and 40, respectively. For at least the same reasons cited above with regard to claims 1, 9, 16, 21, 28, 34 and 40, Applicants submit that the remaining dependent claims are not rendered obvious by the cited prior art and are in condition for immediate allowance. Reexamination and reconsideration are respectfully requested.

In a further telephone interview with the Examiner on September 30, 2003, three prior art references made of record but not relied upon were brought to Applicants' attention, Chia, U.S. Patent No. 5,651,085, Takahashi, U.S. Patent No. 5,677,976, and Serafini, et al., U.S. Patent No. 5,706,379. The Examiner stated that, in view of Beard, U.S. Patent No. 5,317,663, these references might render the claims obvious. The Examiner suggested that Applicants address these references in a subsequent response. It is Applicants understanding that the Response After Filed faxed to the Examiner on September 16, 2003, has not been entered and was treated by the Examiner as a proposed response for discussion purposes only.

Applicants disagree with the Examiner's assertion that the suggested combination of references would render the claims obvious. The primary reference, Beard, shows an adapter for connecting two fiber optic connectors such that the polished endfaces of the ferrules are placed into alignment with each other within a split sleeve (see the Abstract). The endfaces are placed directly adjacent to each other and no intervening structure is positioned with the split sleeve. There is no teaching or suggestion that it would be desirable to include any intervening structure within the split sleeve. No problem is identified that would indicate that such an inclusion of intervening structure would be desirable. In fact, as Applicants described in the Background of the Specification, attenuation within an optical circuit including such adapters is provided with inline attenuation devices. Applicants specifically cited Beard in the Specification as an example of an adapter which does not include any means for attenuating optical signals.

Further, two of the three cited references, Takahashi and Chia, disclose just such inline attenuation devices. Neither of these references teaches or suggests that these inline attenuation devices be placed within an adapter so that they would be intervening structure between the polished endfaces of ferrules of optical fiber connectors.

The third reference, Serafini, does disclose a coupler but does not teach or suggest several recited limitations of the claims. The coupler of Serafini is not adapted to be mounted within an opening in a bulkhead, nor does it include inner faces of the ferrules which are perpendicular to the axial opening or the optical fiber within the hub. Serafini teaches that the casings 32 and 42, in FIGS. 3 and 4, include flanges 33 and 43, respectively, to facilitate fixing the casings to each other. No means for mounting the disclosed couplers to an opening in a bulkhead is taught or suggested. FIG. 5 discloses an alignment coupling 50 which is adapted for inline installation in an optical circuit. In none of the disclosed embodiments is any means for mounting the couplers or alignment couplings disclosed or taught. There is no suggestion that it would be desirable to mount the couplers or alignment couplings in any fashion.

Further, Serafini clearly requires that the inner faces of the ferrules be angled or oblique with respect to the axial opening or the optical fiber within the hub. As shown in FIG. 1 and described at col. 3, line 16 to 23, the obliqueness of inner faces is an essential characteristic. Thus, Serafini teaches away from the recited limitations of the pending claims.


Applicants submit that the references indicated by the Examiner include no teaching or suggestion for the combination proposed by the Examiner. These references are not properly combinable as suggested by the Examiner and are not a proper basis for the suggested obviousness rejection.

Applicants submit that this Response After Final supercedes the paper faxed to the Examiner on September 16, 2003.

If the Examiner has any questions regarding this Amendment and Response, the Examiner is invited to contact Applicants' representative Alan Stewart, at 612.371.5376.

Respectfully submitted,
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